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**NAVAL WAR COLLEGE  
Newport, R.I.**

**“Money Talks: Why Nigeria’s Petroleum Industry Bill will Fail to End Gas Flaring”**

**by**

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**A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.**

**The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.**

**Signature: \_\_\_\_\_**

**2 November 2012**

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### **Paper Abstract**

Nigeria is ranked second in the world for the amount of natural gas flared as part of the oil drilling process. Not only does flaring have a significant environmental impact on Nigeria and the world, but it also results in US \$2.5 billion in lost revenue if the gas could be captured. As of October 2012, Nigeria is debating a new Petroleum Industry Bill (PIB) that if enacted would ban gas flaring. However, as currently written, the PIB will not end flaring for the same reasons that previous legislation failed. Loopholes in the PIB combined with corruption, lack of effective enforcement mechanisms and lack of incentives to develop the natural gas infrastructure and market will result in its failure.

## INTRODUCTION

Despite immense environmental and economic issues facing the nation, Nigeria literally burns away an estimated two and a half billion dollars of potential revenue annually through gas flaring<sup>1</sup> – the process by which combustion is used to get rid of excess natural gas. Since the discovery of hydrocarbons in the Niger Delta in 1956, gas flaring has been by far the most widespread method of dealing with natural gas associated with the oil drilling process in Nigeria. It remains the most utilized practice today. According to the World Bank, as of 2011, Nigeria ranks second in the world in total volume of gas flared<sup>2</sup>. However, the issues with gas flaring are far more reaching than just the loss of potential income alone. The process touches nearly every aspect of Nigerian society to include environmental damage, economic loss and civil strife.

Nigerian politicians are not oblivious to the issues and as of October, 2012, the Nigerian Legislature is debating a new Petroleum Industry Bill (PIB) to address issues associated with its hydrocarbon market to include gas flaring. If enacted, the PIB will ultimately ban gas flaring within the country. On the surface, the elimination of gas flaring seems an easy win. It would not only improve the environment and increase stability in the region, but also increase government revenue. However, if Nigeria's natural gas infrastructure and markets are not significantly developed, Nigeria's proposed Petroleum Infrastructure Bill will be ineffective in eliminating gas flaring and its associated environmental damage due to loopholes, corruption and ineffective enforcement mechanisms.

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<sup>1</sup> Energy Information Administration, "Country Analysis Briefs: Nigeria," Accessed 12 September, 2012, [www.eia.gov/emeu/cabs/Nigeria/Full.html](http://www.eia.gov/emeu/cabs/Nigeria/Full.html).

<sup>2</sup> US Fed News Service, *World Bank Sees Warning Sign in Gas Flaring Increase*, Washington, D.C., July 6, 2012.

## BACKGROUND

Gas flaring is widely recognized as one of the most damaging practices to the Nigerian environment. Studies directly link gas flaring with multiple issues, ranging from the impact of acid rain on vegetation and infrastructure to human health concerns. For example, a 2011 study in Delta State showed that the Warri Region had up to 700% more lead in its ground surface water as a result of gas flaring than did the Abraka Region.<sup>3</sup> This lead level in the Warri district is 140 times greater than the World Health Organization standard. Lead and other contaminants from gas flaring have been identified as the cause of chronic respiratory problems such as asthma and bronchitis and also results in premature mortality amongst the population.<sup>4</sup> The debate within Nigeria is not whether gas flaring is bad for the local environment, but whether the cost of its cessation is worth it.

Moreover, gas flared in Nigeria has a global environmental impact as it is a major source of carbon emissions. It is estimated that flaring in the country results in 390 million tons of carbon dioxide pumped into the atmosphere annually.<sup>5</sup> Flaring accounts for approximately one third of all Nigerian carbon emissions and 1.2 percent of emissions globally.<sup>6</sup> Although Nigeria ratified the Kyoto Protocol, since it is not an Annex 1 signatory, it is not required to take any actions to curb greenhouse gas emissions. In fact, since Nigeria ratified the Protocol in 1994, its carbon dioxide emissions doubled by 2008 according to the

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<sup>3</sup> Nwankwo, D.O. and C.N. Ogagarue, "Effects of Gas Flaring on Surface and Ground Waters in Delta State Nigeria," *Journal of Geology and Mining Research*, no 3 (May 2011): 134.

<sup>4</sup> Orisakwe, Orish Ebere and Chiara Frazzaoli, *Water Supply in Niger Delta of Nigeria*, (New York: Nova Science Publishers, 2011), 113.

<sup>5</sup> Friday, Oluduro Olubisi, "Climate Change - A Global and National Perspective: the Case of Nigeria," *Journal of Politics and Law* 5, no. 3, (2012): 34.

<sup>6</sup> Murdock, Heather, "Nigeria Mulls Gas Flare Crackdown," *Voice of America News*, 3 July, 2012, Accessed 11 September 2012. Proquest.

United Nations Statistics Division.<sup>7</sup> The impacts of gas flaring in Nigeria are more than just a Nigerian problem.

Along with oil revenue distribution and other environmental concerns, gas flaring is considered a contributing factor to unrest in the oil producing states.<sup>8</sup> Some authors go even further to note that the cessation of gas flaring would address one of the population's grievances and thus help end conflict in the Niger Delta.<sup>9</sup> Continuing instability in the Niger Delta has not only human rights concerns but also limits the economic development of the region as well.

## **COUNTER-ARGUMENTS**

There are several schools of thought that contend while economic concerns are an important aspect in the elimination of gas flaring, it is not the driving factor in eliminating the practice. The two main arguments are: first, that legislation is the primary means to eliminate the problem; and second, that the international community can apply enough pressure to solve the issue through other means. However, both of these arguments do not take into account the environment within Nigeria.

Proponents of regulating the hydrocarbon industry and gas flaring in particular, argue that legislation is the primary means of eliminating harmful practices. Legislation is not only the mechanism to eliminate gas flaring in the future in Nigeria, but is also the reason why gas flared has steadily been reduced over the past several decades. Advocates point out that the

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<sup>7</sup> Index Mundi, "Carbon Dioxide Emissions – Nigeria," Accessed 25 October 2012, <http://www.indexmundi.com/nigeria/carbon-dioxide-emissions.html>.

<sup>8</sup> Friday, Oluduro Olubisi, "Climate Change - A Global and National Perspective: the Case of Nigeria," *Journal of Politics and Law* 5, no. 3, (2012): 34.

<sup>9</sup> Oluduro, Olubayo and Olubisi Oluduro, "Nigeria: In Search of Sustainable Peace in the Niger Delta through the Amnesty Programme," *Journal of Sustainable Development* 5, no. 7 (July 2012): 55.

amount of gas flared in Nigeria from 1999 to 2009 was reduced from 23 million cubic meters to 14 million cubic meters (a 40% reduction).<sup>10</sup> It is argued that without legislation, this would not have happened at all.

History shows that this argument is invalid. Nigeria first began to regulate gas flaring in 1969 when President Yakubu Gowon directed that all gas flaring would cease within five years. As this did not happen, the Nigerian Government passed a similar act in 1979 known as the Gas Reinjection Act No. 99.<sup>11</sup> It too required the elimination of flaring in five years – which also did not happen. A series of subsequent legislation has repeatedly pushed back the date to eliminate flaring. It is now anticipated that the new deadline will be December 31<sup>st</sup>, 2012 based on the draft of the PIB.<sup>12</sup> This deadline too, will not be met. So while a 40% reduction in gas flared over the past two decades is a dramatic accomplishment, the legislation did not achieve its intended purpose. If that were the case, no gas would have been flared since 1974 when it was first banned.

The reduction in flared gas also did not occur because of the legislation passed – it occurred because of economics. The 40% reduction in flaring from 1999 to 2009 directly corresponds with an over 80% rise in the Nigerian natural gas market (domestic usage plus exports) during the same time period.<sup>13</sup> Multi-National Corporations did not voluntarily reduce flaring because of Nigerian mandates, they did it because it was more profitable to not flare all of the gas produced. Legislation may be a necessity in eliminating the process, but it alone will not solve the problem.

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<sup>10</sup> Anomohanran, O, "Determination of Greenhouse Gas Emission Resulting from Gas Flaring Activities in Nigeria," *Energy Policy*, 2012: 666

<sup>11</sup> Justice in Nigeria Now, "Gas Flaring in Nigeria: an Overview April 2010," Accessed 12 September, 2012, <http://justiceinnigerianow.org/jinn/wp-content/uploads/2010/04/JINN-2010-Gas-Flaring-an-overview.pdf>.

<sup>12</sup> Cocks, Tim, *Reuters*, Accessed 20 September, 2012, <http://www.reuters.com/article/2012/05/28/oil-nigeria-flaring-idUSL5E8GR2IX20120528>.

<sup>13</sup> Energy Information Administration, "Country Analysis Briefs: Nigeria," Accessed 12 September, 2012, [www.eia.gov/emeu/cabs/Nigeria/Full.html](http://www.eia.gov/emeu/cabs/Nigeria/Full.html).



Another theory is that international pressure to eliminate gas flaring will cause oil companies to cease flaring on their own, even if there is no direct economic incentive to do so. The environmental movement across the globe has not only raised awareness amongst countless individuals, it has also manifested itself in international consensus over concern for the health of the planet. Standards such as the Kyoto Protocol and the carbon emission reduction goals they set will force oil companies to weigh their long term public relations more than their short term economic loss as a result of ceasing flaring. Under this theory, Nigerian legislation may also help to stop flaring, but it is the fear of a negative corporate image that will actually force them to stop.

There is some merit to this thought process. A quick look at the annual and special reports from the major oil companies involved in Nigeria (e.g. Shell, Chevron and British Petroleum) go to great lengths to show what they are doing to limit environmental impact from operations, including a reduction in the amount of gas flared. It is clear that these companies are concerned about their image of being good stewards. However, the reality is that each of the companies trumpets the flare reductions they have achieved as a result of how much of the natural gas they are actually able to sell. It is marketed well, but profit still drives their decision making.

Although Nigeria ratified the Kyoto Protocol and it is estimated that one third of all carbon emissions are a result of gas flaring<sup>14</sup>, the country has not taken more than symbolic steps to curb emissions. In 2002, the World Bank set up the Gas Flaring Reduction Partnership initiative to help limit flaring world-wide. Despite Nigeria being the second

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<sup>14</sup> Murdock, Heather, "Nigeria Mulls Gas Flare Crackdown," *Voice of America News*, 3 July, 2012, Accessed 11 September 2012. Proquest.

largest gas flaring nation, it was not an original member of the partnership.<sup>15</sup> This indicates how little the government views international pressure to eliminate the practice.

## **DISCUSSION / ANALYSIS**

As a nation, Nigeria has consistently espoused the need to stop gas flaring. Individuals, non-governmental organizations and politicians alike all favor an end to the process. Over the past several decades, the government has tried to legislate the practice out of existence. That is still true today with the Nigerian legislature debating the Petroleum Infrastructure Bill (PIB) that will once again ban gas flaring – a somewhat unnecessary measure, as gas flaring has already been banned for the past 38 years. Regardless, Nigeria is once more looking to mandate the cessation of flaring through the PIB.

The PIB is a widely supported and significant piece of legislation that covers the entire petroleum industry.<sup>16</sup> However, it will not end gas flaring within Nigeria for several reasons. First, the PIB will fail to end flaring due to loopholes in the bill and corruption within the government. Second, there are no national or international enforcement mechanisms to stop the flaring. Finally, without the infrastructure in place and a market to sell the vented natural gas, there is no incentive for the oil companies to cease flaring.

### **The PIB will fail due to loopholes and corruption**

The Petroleum Infrastructure Bill will fail to cease gas flaring due to loopholes (i.e. the legal flaring of gas under various mechanisms) written into the legislation and

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<sup>15</sup> Partnerships for Sustainable Development, *Global Gas Flaring Reduction Partnership*, January 6, 2004. Accessed 20 September, 2012. <http://webapps01.un.org/dsd/partnerships/public/partnerships/186.html>.

<sup>16</sup> Murdock, Heather, "Nigeria Lawmakers to Debate Oil Industry Overhaul," *Voice of America News*, 11 September, 2012, Accessed 20 September 2012. Proquest.

governmental corruption. Essentially the bill may become law, but there are too many ways around it. This should come as no surprise as nothing in Nigeria's past would have us believe that this legislation is any different than previous versions.

As noted earlier, all previous attempts to legislate gas flaring have failed. Due to popular support from many sectors, former attempts to end flaring had a common goal of completely ending flaring within a specific time period. However, each of the pieces of legislation also left loopholes in the system to enable the practice to continue.

The most legal loophole utilized was, and is, the payment of a nominal fine by the oil companies who flared the gas. These fines have been ineffective in stopping the process due to their small amount. In the 1969 bill, the fines were a miniscule US \$0.003 (.3 cents) per million cubic feet. This fine was subsequently increased to US \$0.07 (7 cents) per million cubic feet in 1988. As of 2008 the fine was dramatically raised to US \$3.50 per 1000 standard cubic feet.<sup>17</sup> However, even if the fines were fully paid, it is a cost that oil companies are willing to accept as it is still cheaper than the capital investment required to suspend flaring.<sup>18</sup>

Endemic corruption within the Nigerian government also resulted in the effective non-compliance by oil companies to adhere to the previous laws that banned gas flaring.<sup>19</sup>

Considered one of the world's most corrupt countries,<sup>20</sup> some groups like the Ecological

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<sup>17</sup> Justice in Nigeria Now, "Gas Flaring in Nigeria: an Overview April 2010," Accessed 12 September, 2012, <http://justiceinnigerianow.org/jinn/wp-content/uploads/2010/04/JINN-2010-Gas-Flaring-an-overview.pdf>.

<sup>18</sup> Friday, Oluduro Olubisi, "Climate Change - A Global and National Perspective: the Case of Nigeria," *Journal of Politics and Law* 5, no. 3, (2012): 34.

<sup>19</sup> Bienen, Leslie, "Nigerian communities demand an end to gas flaring," *The Ecological Society of America*, Accessed 24 October, 2012, [www.frontiersinecology.org](http://www.frontiersinecology.org).

<sup>20</sup> Kennedy, Sam, *Frontline/World: the Business of Bribes: Nigeria: the Hidden Cost of Corruption*. April 24, 2009, Accessed 23 October, 2012. <http://www.pbs.org/frontlineworld/stories/bribe/2009/04/nigeria-the-hidden-cost-of-corruption.html>

Society of America directly link the failure to end flaring with Nigeria's corrupt politicians.<sup>21</sup> One example is the case of United States citizen Jim Bob Brown who was prosecuted (in the US court system) for bribing various Nigerian officials with \$1.5 million dollars relating to the natural gas industry in Nigeria.<sup>22</sup> In addition to loopholes, corruption is a significant reason why previous legislation has failed.

The same conditions that enabled loopholes in the law and corruption to exist in the past are still present today. As currently written, the PIB explicitly allows the same loopholes to exist as before. The PIB allows companies to continue flaring gas as long as they pay a fine "not to be less than the value of the gas flared."<sup>23</sup> With the discovery and production of natural gas from shale around the world, natural gas prices have generally fallen in the past year. Within the United States, the reference price of natural gas (known as the Henry Hub) has fallen over 65% within the last year alone.<sup>24</sup> With oil prices going higher, and natural gas prices falling, the fine for flaring gas in Nigeria is one that oil companies will be willing to pay if necessary.

Consistent with previous legislation, exemptions are still possible under the PIB. In addition to a blanket waiver that can be granted for any reason by the Minister of Petroleum Resources, the Bill specifically allows exemptions for start up, equipment failure, shut down, safety, or inability for a customer to take delivery of natural gas.<sup>25</sup> This last exemption is

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<sup>21</sup> Bienen, Leslie, "Nigerian communities demand an end to gas flaring," *The Ecological Society of America*, Accessed 24 October, 2012, [www.frontiersinecology.org](http://www.frontiersinecology.org).

<sup>22</sup> US Department of Justice, "Former Executive of Willbros Subsidiary Pleads Guilty to Conspiring to Bribe Foreign Officials in Nigeria and Ecuador," Accessed 25 October, 2012. [www.justice.gov/opa/pr/2006/September/06\\_crm\\_621.html](http://www.justice.gov/opa/pr/2006/September/06_crm_621.html).

<sup>23</sup> Nigerian Government, *The Petroleum Industry Bill 2012*, 2012, 145.

<sup>24</sup> Nigeria Oil and Gas Intelligence, <http://www.nigeriaoilandgasintelligence.com/2012/10/15/falling-gas-prices-threatens-nigerias-lng-projects/>

<sup>25</sup> Nigerian Government, *The Petroleum Industry Bill 2012*, 2012, 145.

significant as if there is no market for natural gas for oil companies to sell it to, or there is no infrastructure to transport it then there are no fines associated with the flaring.

Continued corruption within the government will likely result in future exemptions being granted in areas considered to be gray under the law. Historically, outside sources have widely regarded the reason for the continuation of gas flaring as a result of corrupt officials. Today, the Nigerian government is still considered to be beholden to the major oil companies.<sup>26</sup> With the broad exemptions allowed under the PIB, it leaves the door open for oil companies to continue flaring with little to no penalties assessed.

It is no surprise that Nigerian officials have been reluctant to impose penalties on major oil companies. Today, petroleum production accounts for 95% of export earnings and 85% of government revenues.<sup>27</sup> Oil is the proverbial cash cow for the nation and its revenues are what fund the government to a major extent. Simply put, while the government may want to end flaring for numerous reasons, their ability to stay in power rests with their ability to sustain the revenue associated with oil production.

The government alone is unwilling to fund or subsidize major infrastructure projects that would make it profitable to capture gas instead of flaring it. Joint ventures have often stalled for numerous reasons with both the government and oil companies blaming each other.<sup>28</sup> With the recent slump in world natural gas prices, joint ventures to improve the infrastructure are now in danger of becoming a reality. The most notable project under consideration for cancellation is the natural gas pipeline from Nigeria to Europe through the

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<sup>26</sup> Friday, Oluduro Olubisi, "Climate Change - A Global and National Perspective: the Case of Nigeria," *Journal of Politics and Law* 5, no. 3, (2012): 34.

<sup>27</sup> Gast, Earl, *House Foreign Affairs Subcommittee on Africa, Global Health, and Human Rights Hearing*, Washington D.C., July 10, 2012.

<sup>28</sup> Mark, Monica, "Nigeria's penalty for gas flaring will not curb emissions, say campaigners," *the Guardian*. May 31, 2012, Accessed 20 October 2012, <http://www.guardian.co.uk/environment/2012/may/31/nigeria-penalty-gas-flaring>.

Saharan Desert.<sup>29</sup> Not only is Nigeria dependent upon the major corporations for its own revenue streams, they are also reliant upon them for developing the infrastructure to enable any captured gas makes it to market.

The draft Petroleum Industry Bill addresses the issue of gas flaring and sets a goal of its elimination. However, it is plagued with the same problems that previous legislation had. Namely that it still allows for loopholes in the system as any fines imposed are ones that oil companies are willing to pay. Additionally, corruption within Nigeria will continue to maximize the number of exemptions granted. The PIB is an important step for Nigeria to get their hands around the problems associated with gas flaring, but it in and of itself, will not eliminate the practice.

### **The PIB will be ineffective because there are no effective enforcement mechanisms**

The second reason that the PIB will be ineffective is that there are no effective enforcement mechanisms to ensure compliance. Without a verifiable means to report violations of the law and then have an ability to successfully prosecute those violations, the legislation will not succeed. Currently in Nigeria, there are no viable enforcement mechanisms to deal with gas flaring at either the local, national or international level and the draft PIB does not sufficiently correct this problem.

Oil companies self-report their gas flaring statistics world-wide to include flaring within Nigeria. Most countries, to include Nigeria, require oil companies to provide flaring data, but there is no standardized way of doing it largely due to the technical complexity of

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<sup>29</sup> Kay, Chris, "Nigeria May Postpone Gas Pipeline to Europe Amid Price Slump," *Bloomberg Business Week*, 27 February, 2012, Accessed 24 October, 2012, <http://www.businessweek.com/news/2012-02-27/nigeria-may-postpone-gas-pipeline-to-europe-amid-price-slump.html>.

the problem.<sup>30</sup> Consequently, oil companies have come up with different solutions on how to both accurately measure and report flaring. The PIB addresses standardizing gas flare metering “by using equipment from time to time as specified by the Inspectorate.”<sup>31</sup> This language is too broad to be effective as it does not solve the issue.

Despite international initiatives to stop flaring, there is still no single international standard to measure the process and a recent study in Nigeria indicated that there is no third party verification of gas flared in the country.<sup>32</sup> This problem parallels the fact that out of all the major global energy markets, natural gas is the only one where there is wide price variation between geographic markets. Due to the technical complexity of the problem, standard measurements are increasingly a growing objective of the international community.<sup>33</sup> Even a decade after the World Bank’s Global Gas Flaring Reduction (GGFR) was formed, it still only shares best practices instead of setting an international standard. In 2008 the GGFR published a technical report on various gas flaring measurement techniques to improve the “accuracy, reliability and transparency” of gas flare reporting.<sup>34</sup> While this sharing of best practices is important, it still does not establish a standard.

Whether using the oil companies self-reported values, or satellite imagery, there is currently no credible enforcement mechanism in Nigeria to deal with gas flaring. Previous legislation efforts pointed to the Minister of Petroleum to enforce the law. Unfortunately, the

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<sup>30</sup> Ayoola, Tajudeen John, "Gas Flaring and its Implication for Environmental Accounting in Nigeria," *Journal of Sustainable Development* 4, no. 5 (October 2011): 246.

<sup>31</sup> Nigerian Government, *The Petroleum Industry Bill 2012*, 2012, 145.

<sup>32</sup> Ayoola, Tajudeen John, "Gas Flaring and its Implication for Environmental Accounting in Nigeria," *Journal of Sustainable Development* 4, no. 5 (October 2011): 246.

<sup>33</sup> Gulaga, Curtis and Brett Light, “Flare Measurement “Best Practices” To Comply with National & Provincial Regulations,” Accessed 20 October, 2012, [www.cbeng.com/resources/whitepaper/Flare\\_Measurement\\_Prov\\_Reg.pdf](http://www.cbeng.com/resources/whitepaper/Flare_Measurement_Prov_Reg.pdf).

<sup>34</sup> Global Gas Flare Reduction partnership, "Guidelines on Flare and Vent Measurement," 18 September, 2008, Accessed 30 October, 2012, [www.siteresources.worldbank.org](http://www.siteresources.worldbank.org).

Minister was, and is, not resourced to accomplish this task. It is currently estimated that the major oil companies owe US \$58 million in uncollected fines due to gas flaring.<sup>35</sup> Not only does the Nigerian government lack the ability to accurately measure gas flaring, but it does not have the ability to collect the legal fines once they are assessed. Oil companies are effectively able to avoid any serious repercussions from flaring.

In addition to loopholes, Nigeria has failed to enforce its own laws on gas flaring. In response to a civil suit against an oil company, *Gbemre v. Shell Petroleum Development Co.*, a Nigerian Federal High Court ruled in 2005 that gas flaring was illegal and ordered the flaring to cease – yet flaring continues today.<sup>36</sup> Another example is the previously mentioned bribery case of Jim Bob Brown; his prosecution in the United States and not in Nigeria is indicative of the Nigerian legal system's failure to address violations of its own laws. At the end of the day, the government was willing to put profit ahead of environmental concerns.<sup>37</sup>

In the few cases where flaring violations were enforced, the ability of the Nigerian court system to prosecute the cases proved ineffective. For Mr. Gbemre, when his case went to court again in 2007, the trial judge was transferred, the case file was lost and he was detained by the same Nigerian soldiers who guarded the flaring sites.<sup>38</sup> Regardless of the specific reason, the purported ability of the government to try cases, does not serve as a deterrent to stop the practice of flaring that violates the law.

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<sup>35</sup> BBC Monitoring Africa. "Report shows Nigeria lost billions of dollars in oil, gas revenues." 25 October, 2012. Accessed 28 October, 2012. Proquest.

<sup>36</sup> Friday, Oluduro Olubisi, "Climate Change - A Global and National Perspective: the Case of Nigeria," *Journal of Politics and Law* 5, no. 3, (2012): 35.

<sup>37</sup> Okeagu, Jonas E et al, "The Environment and Social Impact of Petroleum and Natural Gas Exploitation in Nigeria," *Journal of Third World Studies*, 2006: 200.

<sup>38</sup> Ukala, Eferiekose, "Gas Flaring in Nigeria's Niger Delta: Failed Promises and Reviving Community Voices," *Washington and Lee Journal of Energy, Climate, and the Environment* 2, issue 1 (September 2010): 116-117.



The PIB makes modest efforts to put a more effective enforcement mechanism in place. It specifically calls for the establishment of an upstream (i.e. production) Inspectorate separate from the downstream (i.e. refinement / distribution) regulators. It also calls for standardizing the metering equipment used to measure the volume of gas flared.<sup>39</sup> These are significant steps forward but will not succeed for several reasons. First, it does not address the corruption issue. The new Inspectorate will be equally susceptible to bribes as those at the ministerial level have been for the past several decades. Second, it also does not address the issues associated with the Nigerian legal system and its inability to prosecute cases. Violators of the law may be identified by the new Inspectorate, but if the court system does not have either the capacity or will to prosecute cases, then it will not succeed.

**The PIB will fail because it does not effectively address either the lack of natural gas infrastructure or the underdeveloped natural gas market.**

History has shown that regulation of the hydrocarbon industry in Nigeria by itself is not effective. There are too many loopholes in the system to enable laws to succeed without a corresponding incentive within the private market. Unless the natural gas infrastructure and market are dramatically improved, gas flaring will continue to be a significant problem because the PIB fails to adequately provide an economic incentive to stop.

Today, the infrastructure does not exist to economically capture, store and transport the amount of natural gas produced in Nigeria.<sup>40</sup> While all of the derricks have either a pipeline or storage system for capturing crude oil, few have a means to capture and transport associated natural gas. Oil companies cite a primary reason for their inability to end flaring

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<sup>39</sup> Nigerian Government, *The Petroleum Industry Bill 2012*. 2012: 145.

<sup>40</sup> Energy Information Administration, "Country Analysis Briefs: Nigeria," Accessed 12 September, 2012. [www.eia.gov/emeu/cabs/Nigeria/Full.html](http://www.eia.gov/emeu/cabs/Nigeria/Full.html).

as the lack of infrastructure.<sup>41</sup> As an example, Nigeria does have a Liquid Natural Gas (LNG) terminal at Bonny Island but it currently operates at max capacity. Other LNG terminals are in the process of being built, but have been repeatedly delayed and will not come on-line until 2015 at best.<sup>42</sup> If the oil companies thought it were economically feasible for them to build their own infrastructure, they would have done it years ago.

The Nigerian government recognizes the problem and actively works with oil companies to build pipelines and other projects. However, due to issues such as kidnappings of oil workers and damage to oil infrastructure, oil companies have repeatedly shut down or delayed operations.<sup>43</sup> It is a vicious cycle. Environmental issues like flaring contribute to instability and it is the same instability that is an impediment to end flaring. The results are an underdeveloped infrastructure to handle the natural gas produced by flaring.

Even if the infrastructure was developed the market is not. There simply is no one to sell the quantity of natural gas produced to. The domestic market is limited because of limited consumption. From 2000 to 2010 the domestic consumption of natural gas actually decreased.<sup>44</sup> Likewise, the foreign market is also underdeveloped as a result of a lack of infrastructure to transport the gas either via pipeline or LNG. The decrease in world natural gas prices will only exacerbate this problem.

The PIB does not effectively address either the dearth of infrastructure or the market for natural gas. The bill does mandate numerous new requirements such as the linkage of

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<sup>41</sup> Friday, Oluduro Olubisi, "Climate Change - A Global and National Perspective: the Case of Nigeria," *Journal of Politics and Law* 5, no. 3, (2012): 34.

<sup>42</sup> Energy Information Administration, "Country Analysis Briefs: Nigeria," Accessed 12 September, 2012. [www.eia.gov/emeu/cabs/Nigeria/Full.html](http://www.eia.gov/emeu/cabs/Nigeria/Full.html).

<sup>43</sup> Okeagu, Jonas E. et al, "The Environment and Social Impact of Petroleum and Natural Gas Exploitation in Nigeria," *Journal of Third World Studies* 23, no. 1 (Spring 2006): 204.

<sup>44</sup> Energy Information Administration, "Country Analysis Briefs: Nigeria," Accessed 12 September, 2012. [www.eia.gov/emeu/cabs/Nigeria/Full.html](http://www.eia.gov/emeu/cabs/Nigeria/Full.html).

natural gas distribution with domestic market consumption.<sup>45</sup> However, there are no specifics associated with the requirement. In short, the bill does virtually nothing to promote or direct infrastructure development.

The PIB fails to provide any effective incentives for the oil companies to create the infrastructure on their own. While it nominally lowers production taxes, it imposes several new taxes as well.<sup>46</sup> There are no incentives in the PIB for oil companies to make capital improvements to capture flared gas.

While the PIB establishes goals and helps define better standards for the hydrocarbon industry, it does not directly help improve the natural gas infrastructure or develop the market for Nigerian natural gas. If Nigeria wants to end flaring, then it is critical that they set the conditions for it to be economical to capture flared gas.

## CONCLUSIONS

Nigeria is currently beholden to oil and it is apparent in the decisions that the government makes. As a nation, it will continue to do what it takes to ensure its major source of revenue continues – even if this results in some undesirable second and third order effects like gas flaring. Previous attempts to end flaring through legislation have failed and while the PIB is a marked improvement in establishing tougher standards, it too, will ultimately fail for the same reasons.

The PIB explicitly leaves the same loopholes for gas flaring in place that currently exist. In essence, it will be cheaper for oil companies to pay the fines for flaring, when or if assessed, than to invest in the infrastructure to capture vented gas. These loopholes will be further compounded by endemic corruption and the lack of enforcement mechanisms within

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<sup>45</sup> Nigerian Government, *The Petroleum Industry Bill 2012*, 2012, 91.

<sup>46</sup> Ibid, 171.

the Nigerian government. The language of the PIB is cosmetically stronger, but in the end, it does not correct the underlying reasons that oil companies continue to flare.

Multinational oil corporations will do what is in their best economic interest. As currently written, the PIB does not provide any effective incentives or reasons for oil companies to voluntarily stop flaring. Consequently, oil companies will continue to flare a large portion of natural gas associated with drilling by exploiting loopholes in the PIB. It's not that oil companies want to flare the gas, it's just not economical to do it any other way.

Gas flaring in Nigeria will ultimately end when there is a market solution to accompany legislative efforts. If the infrastructure is improved and the market for Nigerian natural gas is expanded, oil companies will cease flaring on their own as it will be in their best interest to do so. The past several decades in Nigeria has already shown this with the reduction of flared gas corresponding to the increased demand for the product.

## **RECOMMENDATIONS**

The PIB will most likely be passed into law at some point in the future. Unfortunately, as currently written the PIB will result in a lost opportunity for Nigeria to not only continue its economic development, but also put an end to the environmental damage associated with flaring. Because flaring is a global issue, not only should Nigeria take measures to address the underlying causes, but the United States should also focus its aid on economic development of the region.

Nigeria should amend the PIB in several areas. First, the fines associated with gas flaring need to be high enough so that it is more economical to capture the gas than to flare it. Second, the number and type of exemptions granted needs to be reduced. Third, the raise in fines should also be accompanied by specific incentives for oil companies to invest in

infrastructure over time. Nigeria needs to reward those companies who are willing to take economic risk. Fourth, Nigeria needs to actively expand its own natural gas market (e.g. natural gas electric plants). Finally, a larger percentage of profits from oil drilling should stay in the state where the drilling occurs. This would not only help provide essential services, but also eliminate one of the grievances of the population.

The United States has a vested interest in Nigeria and not just for environmental reasons. It is in our national interest for Nigeria to continue to be a stabilizing nation in the region and a significant contributor to peacekeeping operations. Because gas flaring affects almost every aspect of Nigerian society, we should focus our efforts to promote the development of their natural gas infrastructure while directly linking it to the cessation of gas flaring. This is nothing new as Anthony E. Wayne, the U.S. Assistant Secretary for Economic and Business Affairs noted in 2003 that ending gas flaring in Nigeria “will not be possible without the necessary market reforms...to foster economic development of gas resources.”<sup>47</sup> We can have the most impact if we help create the conditions where it will be economical for oil companies to cease flaring on their own.

### **FINAL REMARKS**

The cessation of gas flaring can potentially be a win-win situation for all involved. However, this will not happen by just directing the problem to go away as the current PIB does. Given that Nigeria is dependent upon oil revenue, the solution is not to legislate flaring out of existence – a better alternative must be provided. If the government of Nigeria and its partners can create realistic conditions for flaring to be uneconomical, then the problem will correct itself.

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<sup>47</sup> Wayne, E. Anthony, *U.S. Policy on Investment and Development of Oil and Gas Resources in Africa*, Washington D.C., June 27, 2003.

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